Rediscovery, Distribution and Phytogeographic Affinities of Leptogramma pilosa in Alabama

JOHN W. SHORT and JOHN D. FREEMAN*

Leptogramma pilosa var. *alabamensis* (Crawford) Wherry was originally described as *Thelypteris pilosa* var. *alabamensis*, based on material collected in Winston County, Alabama (Crawford, 1951). The type locality was stated to be a sandstone cliff on the "West Fork of the Sipsey River" five miles east of Double Springs (presumably where U.S. Highway 278 crosses Sipsey Fork[1]), at 400 m

FIG. 1. Plants of *Leptogramma pilosa* var. *alabamensis*.

(1300 ft) elevation. Crawford identified two additional collections from the Mexican states of Chihuahua and Sonora as var. *alabamensis*, whereas the typical variety previously had been known from Chihuahua and central and southern Mexico and Guatemala. The species has not been reported until now from any locality in the United States other than the one cited by Crawford.

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*Department of Botany and Microbiology, School of Agriculture and Agricultural Experiment Station, Auburn University, Auburn, AL 36830.

[1]The nomenclature of the river at the collecting site is confused. On recent highway and topographic maps, it is called "Sipsey Fork." Colloquially it is called the "Sipsey River" or just "the Sipsey." The full and correct name perhaps should be "Sipsey Fork of the Black Warrior River."

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In 1960, when the L. M. Smith Dam was completed several miles downstream from the type locality, the higher water level of Smith Lake in the Sipsey gorge necessitated construction of a new bridge for U.S. Highway 278. This construction leveled the cliff, and with the impoundment of Smith Lake completely destroyed the habitat in which *L. pilosa* var. *alabamensis* occurred. The species was assumed to have been lost from the Alabama (and, indeed, the U.S.) flora (Dean, 1969).

At a conference on rare and endangered species of Alabama held at Tuscaloosa in the spring of 1975, it was disclosed by Mrs. L. C. Smith (pers. comm. to J.D.F.) that *L. pilosa* had been observed somewhere along the Sipsey near the reported locality. Topographic maps revealed that a likely location would be the massive sandstone cliffs five miles *north* of Double Springs where Alabama Highway 33 crosses the river. Since no point in Winston County is more than 1,000 feet in elevation, it was clear that the elevation indicated by Crawford for the type locality had been in error.

In September 1975 and April 1976, several colonies of *L. pilosa* var. *alabamensis* were found near the Alabama Highway 33 bridge over Sipsey Fork, at the upper reaches of Smith Lake. This site is marked by an overhanging cliff rising more than 60 feet above the river. *Leptogramma pilosa* occurs in crevices in the north-facing cliff and on a smaller, west-facing cliff downstream *(Fig. 1)*. The thin, damp soil has been described as moderately acid (Wherry, 1964). The elevation of Smith Lake is about 500 feet; all colonies of *L. pilosa* observed were about 10 feet above water level and grew in close association with *Trichomanes boschianum* and various bryophytes. The type locality downstream was probably several feet lower. Other pteridophytes found nearby included: *Osmunda regalis, Athyrium asplenioides, A. thelypteroides, Woodwardia areolata* and *Selaginella apoda*.

Leptogramma pilosa still has not been found in the United States outside the gorge of Sipsey Fork. Besides the localities cited above, it has been seen in the Sipsey River Picnic Area near the Lawrence County line (R. Kral, pers. comm. to J.W.S., 1976). This gorge is over 1,200 miles from the nearest Mexican localities for the species. Located in the Cumberland Plateau just above the Fall Line, all major streams in the Sipsey Fork area have eroded narrow gorges with steep sides and many cliffs. These damp, cool gorges harbor a peculiar and unique assemblage of plant species including several near endemics as well as disjunct populations of species with principal ranges elsewhere. The Hemlock-Hardwood Forest Association is well developed in the gorges, some 150 miles from the southern limit of its main range in the Appalachian Mountains. *Trichomanes boschianum* and *T. petersii* are more abundant in these gorges than anywhere else. Whether the disjunctions in this area resulted from direct connections between floras or long range dispersals has not been determined.

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